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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,333	02/06/2004	Vladimir Gelfandbein	3614/191	5271
757	7590	11/21/2005	EXAMINER	
BRINKS HOFER GILSON & LIONE P.O. BOX 10395 CHICAGO, IL 60610			PATEL, JOY	
			ART UNIT	PAPER NUMBER
			3766	

DATE MAILED: 11/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

TGK

Office Action Summary	Application No. 10/774,333	Applicant(s) GELFANDBEIN ET AL.	
	Examiner Joy P. Patel	Art Unit 3766	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/25/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-18, drawn to a device, classified in class 607, subclass 54.
- II. Claims 19-27, drawn to a method of making, classified in class 29, subclass 592.1.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the retinal implant can be constructed by simultaneously forming the implant substrate layer and carbon-coating layer in an extrusion process rather than a two step process as recited in claim 19.

2. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
3. A telephone call was made to Mr. Kent E. Genin on August 15, 2005 to request an oral election to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).
5. Regarding the applicant's remarks, the examiner acknowledges that it would be difficult to extrude a diamond-like film. However, because the applicant has cancelled claims 19-27 instead of withdrawing them, this point is moot and these claims cannot be prosecuted under this application.

Specification

6. The disclosure is objected to because of the following informalities: On paragraph 20, line 14, "the target 44" should be "the target 440".
Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The applicant claims a film that "...comprises a plurality of structurally different diamond-like carbon films. However, there is no mention of a film composed of a plurality of structurally different diamond-like carbon films in the specifications.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-3, 8, and 12 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Greenberg et al. (US 2002/0038134) alone or in further view of Tano et al. (US 4,822,359).
9. In regard to claim 1, Greenberg discloses, "The invention is a retinal color prosthesis" (Abstract, lines 4-5). Greenberg further discloses, "Hermetic sealing is accomplished by coating the object to be sealed with a substance selected from the group consisting of, silicone carbide, diamond-like coating..." (Paragraph 33, lines 1-3). The examiner considers the diamond-like coating disclosed by Greenberg to inherently be a carbon diamond-like coating or otherwise it would have been obvious to select such a coating, which is well known as evidenced by Tano et al. (US 4,822,359).
10. In regard to claims 2 and 3, Greenberg discloses, "For example, the electrode array substrate unit can be placed subretinally and the electronic substrate placed epiretinally" (Paragraph 37, lines 6-8).
11. In regard to claim 8, see paragraph 68.
12. In regard to claim 12, the applicant discloses, "In a similar vein, stresses may also be controlled through a graded... For example, as the thickness of the film increases, the resulting film is more graphitic in nature at its base, smoothly transitioning to more diamond-like at its outer surface" (Paragraph 15, lines 5-12). In figures 12a-12c, Greenberg discloses a diamond-like film (element 1204), which is thicker on the top surface than it is on the side surfaces. Therefore, the

variation in thicknesses of the films creates variations in the properties of these films.

13. Claims 13 and 18 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Greenberg et al. (US 2002/0038134) alone or in further view of Meunier et al. (US 6,261,421).
14. In regard to claim 13, Greenberg, as discussed above, teaches a retinal implant that is designed to electrically stimulate undamaged retinal cells and is coated in a diamond-like coating. However, Greenberg fails to teach that the implant is formed using cathodic arc plasma deposition. The examiner considers cathodic arc plasma deposition to be a commonly used technique for the deposition of a diamond-like carbon coating as is evidenced by the remarks in response to the restriction requirement. Furthermore, this claim is a product by process claim and it is not evident to the examiner that the use of Cathodic Arc Plasma deposition method would produce a diamond-like coating that is structurally different from the coating created by other methods. Alternatively, Meunier teaches, "Many processes can produce diamond-like. Reports have indicated, however, that the Arc Ion Plating (AIP) process (also called Cathodic Arc Plasma Deposition (CAPD) or Vacuum Arc Deposition (VAD)) typically induces superior film quality" (Column 7, lines 21-26). Therefore, it would have been obvious to one of ordinary skill in the art to modify the device of Greenberg in view of the

teachings of Meunier in order to create a retinal implant with the best possible diamond-like coating, since it is used as the hermetic sealant.

15. In regard to claim 18, Greenberg, as discussed above, teaches a method for making the diamond-like carbon film electrically conductive (see paragraph 68), but fails to teach the cathodic arc plasma method of deposition. Alternatively, Meunier teaches a method of arc plasma deposition to bind the film to the substrate. Therefore, it would have been obvious to one of ordinary skill in the art to use the method of arc plasma deposition because it is a common technique implemented for applying diamond-like coatings to substrates.

16. Claim 14 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Greenberg et al. (US 2002/0038134) alone or in further view of Meunier et al. (US 6,236,421) and Anders et al. ("Ultrathin Diamond-Like Carbon Films Deposited by Filtered Carbon Vacuum Arcs").

17. In regard to claim 14, Greenberg et al. (US 2002/0038134 A1 in view of Meunier (US 6,261,421), as discussed above, teaches a retinal implant created through the process of Arc Plasma Deposition, but fails to teach the magnetic filtering of the plasma prior to its deposition. The examiner believes that the resulting structure would be no different. Alternatively, if the resulting structure is different, the examiner applies Anders ("Ultrathin Diamond-Like Carbon Films Deposited by Filtered Carbon Vacuum Arcs"). Anders teaches, "The presence of macro-

and nanoparticles is detrimental to the quality of ultrathin films and, until recently, has prevented commercial application of cathodic arc plasma deposition in some fields..." (Page 769, Column 1, last four lines). Anders further discloses, "The plasma can be guided out of the line-of-sight from the cathode using curved magnetic fields, employing a combined magnetic and electric mechanism for electrons and ions, respectively. The motion of macroparticles is almost not influenced by the presence of fields, thus they move along straight trajectories, thereby being separated from the plasma" (Page 769, paragraph 1 under Macroparticle Filters). Therefore, it would have been obvious to one of ordinary skill in the art to modify the device of Greenberg in view of the teachings of Meunier in further view of Anders in order to create a film that was of the highest quality for implantation into the body and for use as a hermetic sealant.

18. Claims 15 and 16 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Greenberg et al. (US 2002/0038134) alone or in further view of Meunier et al. (US 6,261,421), Anders et al. ("Ultrathin Diamond-Like Carbon films Deposited by Filtered Carbon Vacuum Arcs"), and Anders et al. (US 6,465,793).
19. In regard to claim 15, Greenberg et al. (US 2002/0038134 A1) in view of Meunier et al. (US 6,261,421) in further view of Anders et al. ("Ultrathin Diamond-Like Carbon Films Deposited by Filtered Carbon Vacuum Arcs"), as discussed above, fails to teach that the cathodic arc deposition process is carried out

through electrical biasing. However, the resulting structure appears to be no different. Alternatively, if it is different, the examiner applies Anders (US 6,465,793). Anders (US 6,465,793) teaches, "The power supply 50 is connected between the cathode 32 of source 28 and the exit end 52 of filter 48. The anode 34 of source 28 and entrance end 54 of filter 48 are connected together and grounded. One advantage of this arrangement is that the plasma potential at the exit end 52 of the filter is positive with respect to the ground, which is equivalent to negatively biasing the substrate 30 to which the plasma beam is directed. In both cases the plasma ions are accelerated to the substrate" (Column 4, lines 64 – Column 5, line 7). Therefore, it would have been obvious to one of ordinary skill in the art to modify the device of Greenberg in view of the teachings of Meunier in further view of the teachings of Anders in further view of the teachings of Anders in order to create a diamond-like carbon coating at a faster rate.

20. In regard to claim 16, the resulting structure appears to be no different.

Alternatively, if the structure is different, the examiner applies Anders (US 6,465,793). Anders (US 6,465,793) teaches, "Thus a short, open-architecture magnetic filter in combination with a compact arc source with a cathode of small area and operated in pulsed mode is desirable in order to have a high throughput of clean plasma to a deposition target" (Column 2, lines 23-27). Therefore, it would have been obvious to one of ordinary skill in the art to modify the device of Greenberg in view of the teachings of Meunier in further view of the teachings of Anders in further view of the teachings of Anders (US 6,465,793) in order to

generate an efficient method of depositing clean plasma onto the desired target substrate.

21. Claim 17 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Greenberg et al. (US 2002/0038134) alone or in further view of Meunier et al. (US 6,261,421), Anders et al. ("Ultrathin Diamond-Like Carbon Films Deposited by Filtered Carbon Vacuum Arcs"), Anders (US 6,465,793), and Mech (US 2002/0120296).
22. In regard to claim 17, Greenberg et al. (US 2002/0038134 A1) in view of Meunier et al. (US 6,261,421) in further view of Meunier et al. (US 6,261,421), in further view of Anders et al. ("Ultrathin Diamond-Like Carbon Films Deposited by Filtered Carbon Vacuum Arcs") in further view of Anders (US 6,465,793), as discussed above, fails to teach the removing of at least a portion of the diamond-like carbon film to create at least one opening therein. The resulting structure appears to be no different. Alternatively, if the structure is different, the examiner applies Mech (US 2002/0120296). Mech teaches an ultra-nanocrystalline diamond coating where "Selected electrodes are either left uncovered during coating or uncovered by conventional patterning techniques allowing the electrodes to be exposed to living tissues" (Abstract, lines 6-9). Therefore, it would have been obvious to one of ordinary skill in the art to create openings in the retinal device in order to make the device smaller and eliminate the need for insulated wires, which require more space.

23. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Greenberg et al. (US 2002/0038134 A1) in view of Nisch et al. (US 6,804,560).
24. In regard to claims 4, Greenberg, as discussed above, discloses a retinal prosthesis with a diamond-like coating, but fails to disclose an associated photovoltaic device. Nisch, on the other hand, discloses that photovoltaic cells have been used in the prior art to generate energy for the device. In column 1, lines 42-45, Nisch discloses, "With the aid of infrared radiation being additionally irradiated into the eye for energy supply purposes via a photovoltaic layer positioned behind the pixel elements, the electric signals are converted into electric stimulating signals". Therefore, it would have been obvious to one of ordinary skill in the art to modify the device of Greenberg in view of the teachings of Nisch in order to add an additional, renewable energy source, or even to use it to replace the existing energy supply.
25. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenberg et al. (US 2002/0038134 A1) in view of Mech et al. (US 2002/0120296 A1).
26. In regard to claims 5, 6, and 7, Greenberg teaches a retinal prosthesis with a diamond-like coating. However, Greenberg fails to teach openings in the coating. Rather, Greenberg teaches, "The electrode arrays and the electronic circuits can be on one substrate, or they may be on separate substrates joined

by an insulated wire or by a plurality of insulated wires" (Paragraph 29, lines 8-10). Mech, on the other hand, teaches an ultra-nanocrystalline diamond coating where "Selected electrodes are either left uncovered during coating or uncovered by conventional patterning techniques allowing the electrodes to be exposed to living tissues" (Abstract, lines 6-9). Therefore, it would have been obvious to one of ordinary skill in the art to create openings in the retinal device in order to make the device smaller and eliminate the need for insulated wires, which require more space.

27. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenberg et al. (US 2002/0038134 A1) in view of Tano et al. (US 4,822,359).
28. In regard to claims 9 and 10, Greenberg et al., as discussed above, discloses a retinal implant for stimulation of the eye, which contains a diamond-like coating. However, Greenberg fails to teach that the diamond-like carbon film substantially transparent to wavelengths of either visible or infrared light. Tano, on the other hand, teaches an intraocular lens that is coated with a diamond-like carbon film and is transparent only to visible and infrared light, (See column 2, lines 50-53). Tano further discloses that if the ocular implant is transparent to light in or near the ultraviolet range, damage to portions of the eye, such as the optic nerve can occur. Furthermore, Tano discloses, "There also is a problem in association with visual sensation; that is, the eye fitted with this lens which transmits light in the

ultraviolet and near ultraviolet regions produces a more bluish sensation than the normal eyeball" (Column 1, lines 46-50). Since the goal of this invention is to coat a retinal implant, which is intended to restore vision, with a diamond-like carbon coating, it would have been obvious to one of ordinary skill in the art to modify the device of Greenberg, in view of the teachings of Tano, in order to produce a retinal implant that was biocompatible, prevented damage to the eye, and did not affect the patient's vision.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joy P. Patel whose telephone number is 571-272-5556. The examiner can normally be reached on M-F 8:30-5.

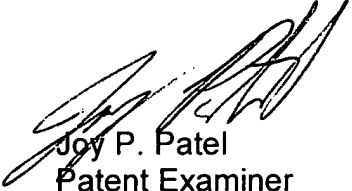
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pezzuto can be reached on (571)-272-6996. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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